

REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.112, and in light of the remarks which follow are respectfully requested.

Claims 1-36 are pending in the application.

By the amendments above, claim 1 has been revised to recite the feature of the “first and second groove sections each having a sidewall, wherein each sidewall of the first and second groove sections intersect a respective side of the pit at a non-orthogonal angle relative to a longitudinal axis of the respective groove section.” Support can be found at least in Figures 2-4 of the application. Claim 15 has been amended to recite that “the first and second wet-etched sections each comprise a sidewall that intersects a respective side of the pit at a non-orthogonal angle relative to a longitudinal axis of the groove.” Support can be found at least in Figures 2-4 of the application. Claim 23 has been amended to recite the feature of “dry-etched pits each having a side and the wet-etched sections each having a sidewall and a longitudinal axis, wherein the side of each dry-etched pit intersects a respective sidewall of an adjoining wet-etched section at a non-orthogonal angle relative to the longitudinal axis of the respective wet-etched section”, support for which can be found at least in Figure 2-4.

Claims 1-3, 6-10, 12-14, 23 and 25-31 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Tabuchi* (U.S. Patent No. 5,611,006). In addition, claim 11 stands rejected under 35 U.S.C. §103(a) as being obvious over *Tabuchi*. Applicant respectfully traverses the rejection for the following reasons.

Tabuchi relates to an integrated optical device, and more particularly, to a hybrid-type integrated optical device having optical components such as laser diodes, photo-isolators, and photodiodes integrated on a single substrate (col. 1, lines 8-12). In making the rejection, the Examiner relies on the device depicted in Figure 14 of *Tabuchi*.

Tabuchi does not disclose or suggest each feature of the present invention. For example, *Tabuchi* does not disclose or suggest a method for “wet etching first and second sections of the substrate to form first and second groove sections each having a sidewall, wherein each sidewall of the first and second groove sections intersect a respective side

of the pit at a non-orthogonal angle relative to a longitudinal axis of the respective groove section”, as set forth in independent claim 1. As described in more detail in applicant’s specification at paragraph [0025] and with reference to the exemplary embodiment illustrated in Figures 2-3, diamond-shaped pits 30, 32, 34, 36 may be provided which have sides that intersect the V-groove sections at a non-orthogonal angle relative to the longitudinal axis of the V-groove section intersected. Such structures can suppress the formation of wedges in the V-groove sections which would not be suppressed if intersection were made at an orthogonal angle, as illustrated in Figure 21.

The specification further states that any shape which provides a projection (e.g., intersection at a non-orthogonal angle) into the V-grooves section may be used (specification at paragraph [0025]). It is desired to suppress wedge formation, for example, because a wedge may interfere with proper placement of an optical fiber in the V-groove sections. In this regard, claim 1 has been amended to recite the non-orthogonal intersection between pit side and V-groove sidewall. Such a structure is not disclosed or suggested by *Tabuchi* (see Official Action at page 2).

Accordingly, withdrawal of the rejection with respect to claim 1 and the claims dependent therefrom is in order.

Regarding independent claim 15, *Tabuchi* does not disclose or suggest “at least two wet-etched sections ... wherein the first and second wet-etched sections each comprise a sidewall that intersects a respective side of the pit at a non-orthogonal angle relative to a longitudinal axis of the groove”, as set forth in claim 15. *Tabuchi* does not disclose or suggest at least the above-quoted features of claim 15, for the reasons provided above with regard to claim 1.

Accordingly, withdrawal of the rejection with respect to independent claim 15 and the claims dependent therefrom is in order.

Regarding independent claim 23, *Tabuchi* does not disclose or suggest “a substrate having a tapered groove formed of a plurality of spaced apart dry-etched pits joined together with wet-etched sections of varying width, ... the dry-etched pits each having a side and the wet-etched sections each having a sidewall and a longitudinal axis, wherein the side of each dry-etched pit intersects a respective sidewall of an adjoining

wet-etched section at a non-orthogonal angle relative to the longitudinal axis of the respective wet-etched section”, as set forth in claim 23. (Emphasis Added.) *Tabuchi* does not disclose or suggest at least the above-quoted features of claim 23, for the reasons provided above with regard to claim 1.

Accordingly, withdrawal of the rejection with respect to independent claim 23 and the claims dependent therefrom is in order.

For at least these reasons, withdrawal of the rejections based on *Tabuchi* is respectfully requested.

Claims 15-18, 23, 25-27, 32, 33, and 36 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Nakanishi* (U.S. Patent No. 6,257,772).

Regarding independent claim 15, *Nakanishi* does not disclose or suggest “at least two wet-etched sections ... wherein the first and second wet-etched sections each comprise a sidewall that intersects a respective side of the pit at a non-orthogonal angle relative to a longitudinal axis of the groove”, as set forth in claim 15. *Nakanishi* does not disclose or suggest at least the above-quoted features of claim 15 for the reasons provided above with regard to claim 15. For example, in a similar manner to *Tabuchi*, *Nakanishi* merely discloses a partition groove 36 having a front wall 38 that intersects V-grooves 34, 35 at an angle orthogonal to the longitudinal axis of the grooves 34, 35.

Accordingly, withdrawal of the rejection with respect to independent claim 15 and the claims dependent therefrom is in order.

Regarding independent claim 23, *Nakanishi* does not disclose or suggest “a substrate having a tapered groove formed of a plurality of spaced apart dry-etched pits joined together with wet-etched sections of varying width, ... , the dry-etched pits each having a side and the wet-etched sections each having a sidewall and a longitudinal axis, wherein the side of each dry-etched pit intersects a respective sidewall of an adjoining wet-etched section at a non-orthogonal angle relative to the longitudinal axis of the respective wet-etched section”, as set forth in claim 23. *Nakanishi* does not disclose or suggest at least the above-quoted features of claim 23, for the reasons provided above regarding the rejection of claim 23 in view of *Tabuchi*.

Accordingly, withdrawal of the rejection with respect to independent claim 23 and the claims dependent therefrom is in order.

For at least these reasons, withdrawal of the rejections based on *Nakanishi* is respectfully requested.

Allowable Subject Matter

Applicant notes with appreciation the indication that claims 4, 5, 19-22, 24, 28-31, and 34-35 would be allowable if rewritten in independent form. However, for the reasons presented above, Applicant respectfully submits that such claims are allowable in their present form.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited.

If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at her earliest convenience.

Respectfully submitted,



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